

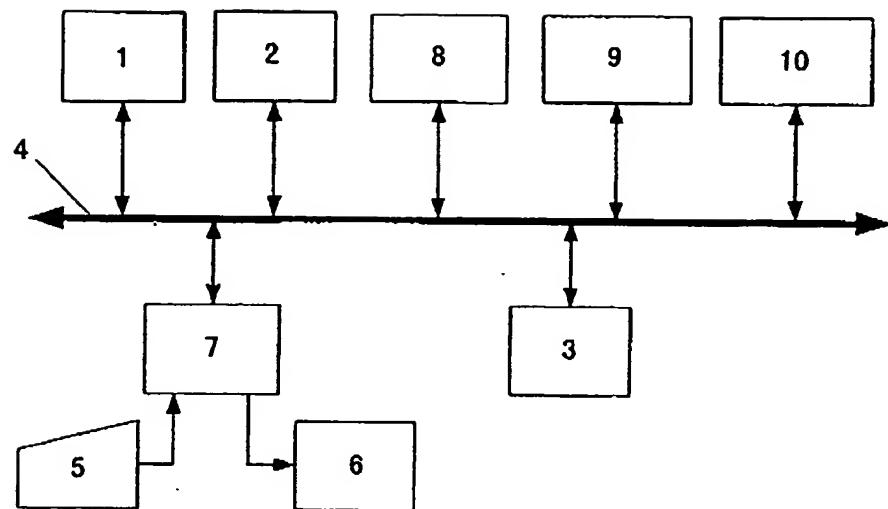
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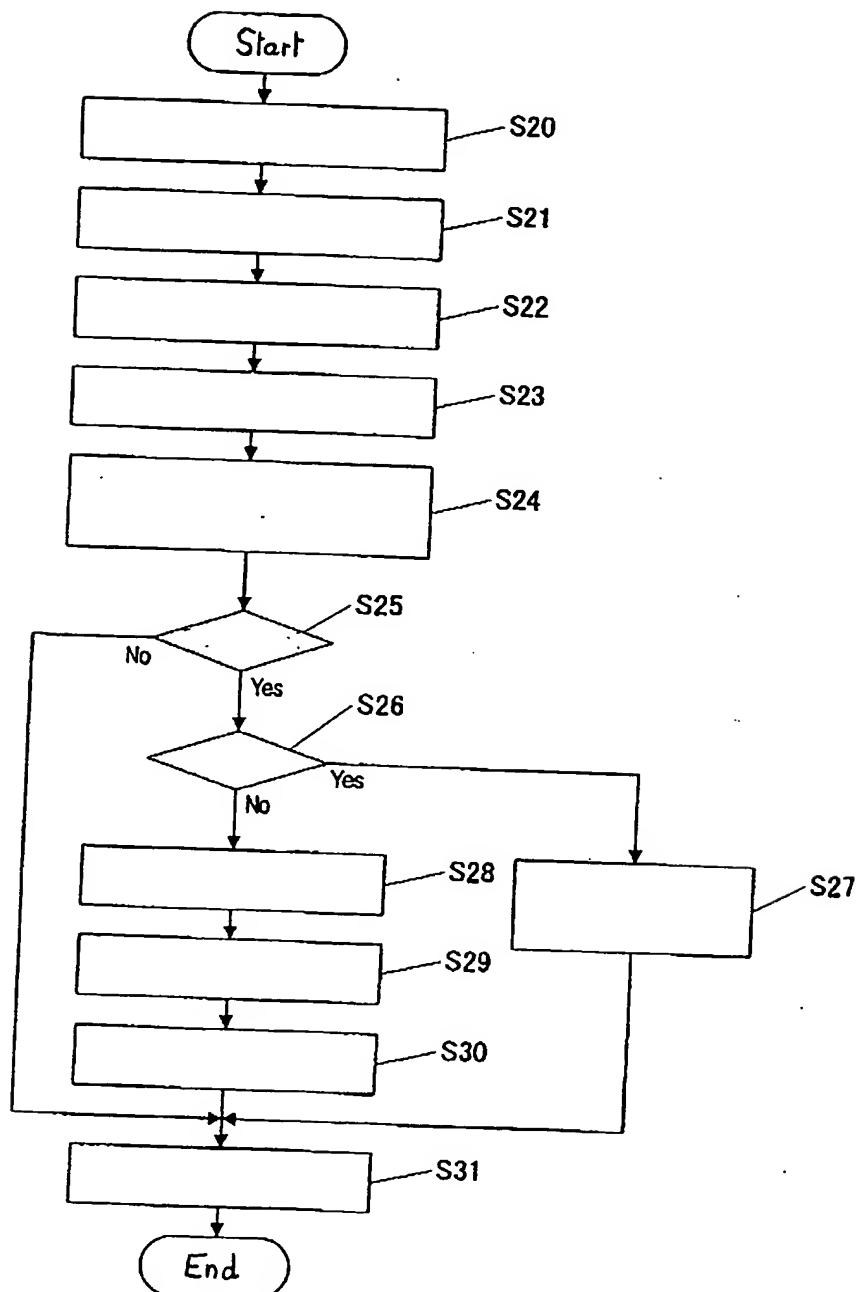
Fig.1

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Fig. 2



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Fig. 3

Designate input/output argument	<p>Input $l \rightarrow r$: Rewriting rule A/AC : Equational tree automaton Output $B_{l \rightarrow r}/AC$: Equational tree automaton</p>
Initial setting	$A_0 := A; i := 0; j := 0;$ $S := \text{pos}(l);$ $T := \text{pos}(r);$
First process	<p>while $S \neq \emptyset$ do</p> <p>Select element p which satisfies the following condition from S : $\forall p' \in S. p \succeq p'$</p> <p>Calculate equational tree automaton A_{i+1}/AC which satisfies the following condition : ... (1)</p> <p>when $l_{ p} = f(t_1, \dots, t_n)$</p> $\mathcal{L}(A_{i+1}/AC) = (\{\rightarrow_{\{f(c_{i_1}^{p,1}, \dots, c_{i_n}^{p,n}) \rightarrow c_{l_{ p}}^p\}}/AC)[\mathcal{L}(A_i/AC)]$ $i := i + 1;$ $S := S - \{p\};$ <p>od</p> <p>Calculate equational tree automaton B_0/AC which satisfies the following condition</p> $\mathcal{L}(B_0/AC) = (\{\rightarrow_{\{c_i \rightarrow d_i\}}/AC)[\mathcal{L}(A_i/AC)]$
Second process	<p>while $T \neq \emptyset$ do</p> <p>Select element q which satisfies the following condition from T : $\forall q' \in T. q' \succeq q$</p> <p>Calculate equational tree automaton B_{j+1}/AC which satisfies the following condition : ... (2)</p> <p>when $r_{ q} = f(t_1, \dots, t_n)$</p> $\mathcal{L}(B_{j+1}/AC) = (\{\rightarrow_{\{d_{r_{ q}} \rightarrow f(d_{t_1}^{q,1}, \dots, d_{t_n}^{q,n})\}}/AC)[\mathcal{L}(B_j/AC)]$ $j := j + 1;$ $T := T - \{q\};$ <p>od</p> <p>$B_{l \rightarrow r} := B_j;$</p> <p>return $B_{l \rightarrow r}/AC$</p>

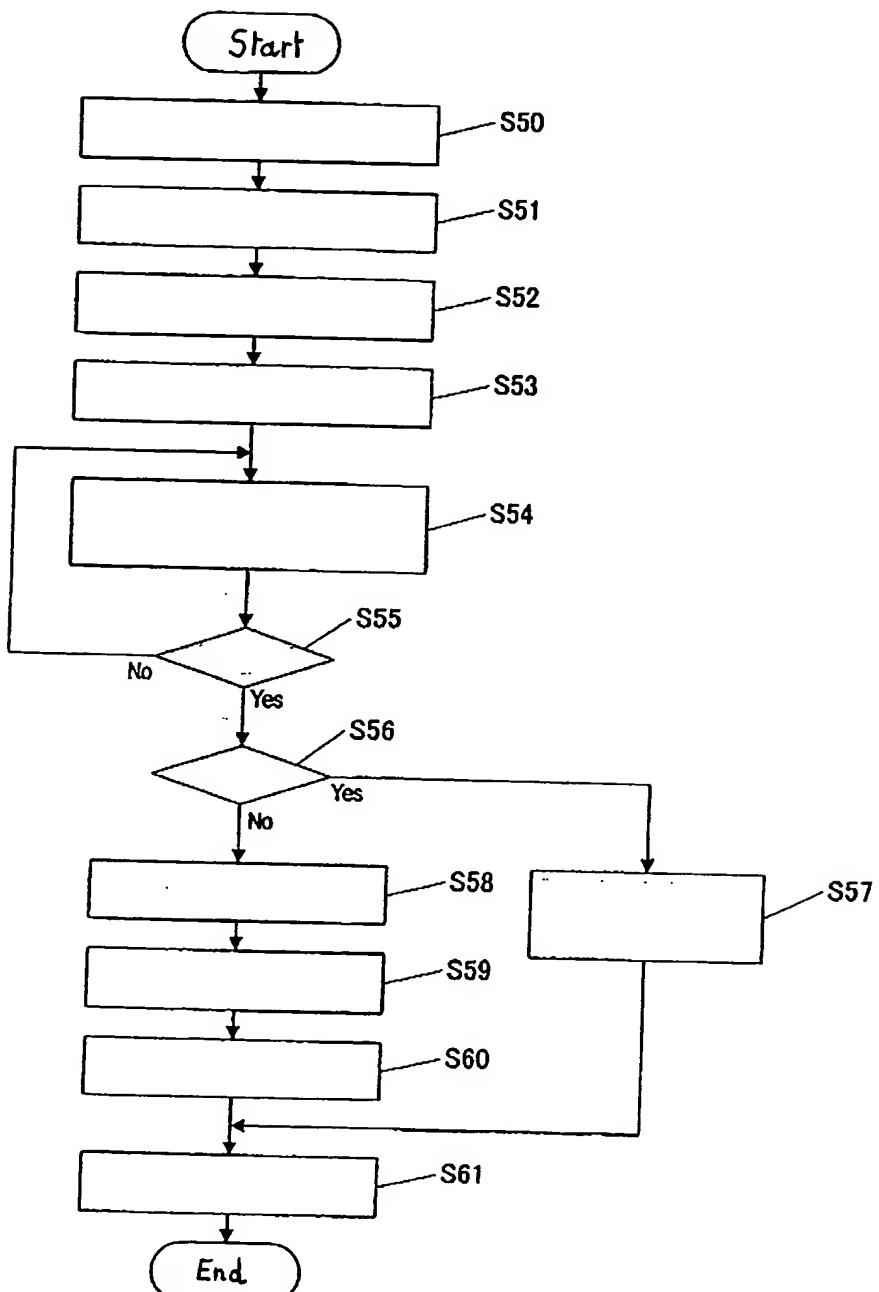
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Fig. 4

Set	Transition rule	Condition
\mathcal{R}_x	$f((p_1, q_1), \dots, (p_n, q_n)) \rightarrow (p, q)$	$\forall f \in \mathcal{F} \setminus \mathcal{G}$ $\forall f(p_1, \dots, p_n) \rightarrow p \in \mathcal{R}_A$ $\forall f(q_1, \dots, q_n) \rightarrow q \in \mathcal{R}_B$
$\mathcal{R}_{\bar{A}}$	$g((p_1, q_1), (p_2, q_2)) \rightarrow g((p, q_1), q_2)$ $g(p_1, (p_2, q_2)) \rightarrow (p, q_2)$	$\forall g \in \mathcal{G}$ $\forall q_1, q_2 \in \mathcal{Q}_B$ $\forall g(p_1, p_2) \rightarrow p \in \mathcal{R}_A$
	$g((p_1, q_1), (p_2, q_2)) \rightarrow g((r_1, q_1), (r_2, q_2))$ $g(p_1, (p_2, q_2)) \rightarrow g(r_1, (r_2, q_2))$	$\forall g(p_1, p_2) \rightarrow g(r_1, r_2) \in \mathcal{R}_A$
$\mathcal{R}_{\bar{B}}$	$g((p_1, q_1), (p_2, q_2)) \rightarrow g((p_1, q), p_2)$ $g(q_1, (p_2, q_2)) \rightarrow (p_2, q)$	$\forall g \in \mathcal{G}$ $\forall p_1, p_2 \in \mathcal{Q}_A$ $\forall g(q_1, q_2) \rightarrow q \in \mathcal{R}_B$
	$g((p_1, q_1), (p_2, q_2)) \rightarrow g((p_1, r_1), (p_2, r_2))$ $g(q_1, (p_2, q_2)) \rightarrow g(r_1, (p_2, r_2))$	$\forall g(q_1, q_2) \rightarrow g(r_1, r_2) \in \mathcal{R}_B$
\mathcal{R}_G	$g((p, q_1), q_2) \rightarrow g(q_1, (p, q_2))$ $g((p_1, q), p_2) \rightarrow g(p_1, (p_2, q))$ $g(q, p) \rightarrow (p, q)$	$\forall g \in \mathcal{G}$ $\forall p_1, p_2, p \in \mathcal{Q}_A$ $\forall q_1, q_2, q \in \mathcal{Q}_B$

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Fig.5



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